

1. PROJECT SETTING

1.1. Introduction

The purpose of this report is to provide the City of Franklin with an update to the City's 1993 Stormwater Management Plan. Since 1993, the population of the City of Franklin has increased by more than 30 percent, and nearly 2000 acres of vacant land have been developed. This report is intended to serve as a comprehensive guide for the expansion and development of the stormwater management system in the City.

The City of Franklin is located in the southwestern portion of Milwaukee County. The City is nearly a full township, encompassing approximately 34.5 square miles. Franklin is bordered by:

- Village of Hales Corners, Village of Greendale, City of Greenfield to the north,
- City of Oak Creek to the east,
- Unincorporated areas of Racine County to the south,
- City of Muskego to the west.

The majority of the City is within the boundaries of the Root River Watershed. The southeastern-most edge of the City is part of the Oak Creek Watershed; the southwestern-most edge is part of the Fox River Watershed.

The Stormwater Management Plan Update includes an inventory of the stormwater ponds installed since 1993. In addition, the stormwater ponds, as modeled in the 1993 report, were included in the analysis. Major and minor drainage districts were defined by topography, present storm sewer systems and detention ponds

In 1978, the State Legislature created the Nonpoint Source Water Pollution Abatement Program (nonpoint source program). The program goal remains unchanged to reduce pollutants from urban and rural nonpoint sources in order to improve and protect the water quality of streams, lakes, wetlands, and groundwater. Nonpoint sources include: eroding agricultural lands, eroding stream banks and roadsides, runoff from livestock wastes, erosion from developing urban areas, and runoff from established urban areas. Pollutants from nonpoint sources are carried to the surface water or groundwater through the action of rainfall or seepage, and snowmelt.

The following is an overview of the program.

- WDNR and the Department of Agriculture, Trade, and Consumer Protection (DATCP) administer the program. The program focuses on critical hydrologic units called priority watersheds. The program is implemented through priority watershed projects, which include implementation plans.

- Local units of government implement the plan. Water quality improvement is achieved through voluntary implementation of nonpoint source controls (best management practices) and adoption of ordinances. Landowners, land renters, counties, cities, villages, towns, sanitary districts, metropolitan sewage districts, regional planning commissions, and lake districts are eligible to participate.
- Technical assistance is provided to aid the design of best management practices. State level cost-share assistance is available to offset the cost of implementing these practices.
- Informational and educational activities are employed to encourage participation.
- The WDNR, DATCP and local units of government cooperatively prepared the priority watershed plan that guides the priority watershed project. The priority watershed plan assesses nonpoint and other sources of water pollution and identifies best management practices needed to meet specific water resources objectives. The plan guides implementation of these practices to improve water quality.

In 1993, the Franklin Stormwater Management Task Force was formed at the outset of the planning process. The group closely followed the development of the Plan through regularly scheduled meetings. The Task Force was made up of members of the Public Works Department, the Planning Commission and representatives of the citizens of Franklin. The purpose of the Task Force is to provide guidance to the City in formulating the goals and policies that would result in the successful implementation of the Stormwater Management Plan. While the Task Force is no longer in place, its policies and goals as outlined in the 1993 plan remain unchanged.

The City of Franklin Stormwater Management Plan Update is a comprehensive assessment of the surface water quality and movement throughout the City. The Plan serves as a guide for the improvement of the entire drainage and water quality infrastructure in order to meet the needs and expectations of the City residents.

This Stormwater Management Plan Update differs from the 1993 plan in that it assumes the current practices of requiring stormwater ponds during development will continue. The 1993 Plan looked at stormwater management in a regional approach, and followed the neighborhood planning boundaries. This provided a good basis for stormwater management, but it also generated the need for the City to take a rather proactive approach by purchasing land and developing the stormwater ponds. Since the 1993 Plan, the City has put the burden of stormwater management on the developer, as many communities have. Accordingly, those practices generated the need to look at stormwater management on a watershed basis. This Plan can be used separately from the 1993 plan; however, the 1993 Plan should be kept as a reference for any regional stormwater interests.

The City undertook this project as a proactive measure to deal with stormwater issues. As our concern for water quality increases, the City needs to be ready for future challenges to protect the natural resources and provide a safe and comfortable environment for its residents.

This Stormwater Management Plan Update contains a set of guiding goals and policies, an engineering analysis of the watershed, the requirements for nonpoint source pollution control, recommendations for drainage system improvements, and cost estimates and

financing alternatives. This report suggests the City continue with its current stormwater management policies, with a few improvements. By requiring developers to install stormwater management facilities, costs to the City are minimized. However, procedural changes for stormwater management review and improved pond features require more of developers, while improving water quality and quantity controls.

1.2. Physical Environment

1.2.1. Land Use

As a growing southeastern Wisconsin community, Franklin experiences substantial new construction. Consequently, the most current land use plan dated 1995 and used for this plan does not reflect the current land use; however, it is useful for comparative purposes. The current land use is shown in Figure 1.

1.2.2. Environmental Corridors

An Environmental Corridor is a linear natural resource feature on the landscape that has been identified as significant by the Southeastern Wisconsin Regional Planning Commission in its Area Wide Water Quality Management Plan. Though the detailed discussion or consideration of the environmental corridors is outside the scope of this Stormwater Management Plan Update, the existence of this recognized area of natural setting is mentioned here to provide a context for the recent attention directed towards environmental stewardship in Southeastern Wisconsin.

The primary environmental corridor in the City of Franklin is located along the Root River and adjoining streams. Recent plant inventory has shown that a number of valuable and precious species exist in the corridor, such as Bur sedge, Canada May flower, black haw, blue flag, wild ginger, swamp white oak, bulbous cress, shooting star, wild cucumber, lake sedge, marsh marigold, blue Vervain, Riddell's golden rod, and boneset. Given this diversity and natural setting, the area is an important wildlife habitat for migratory birds, small mammals, deer, songbirds, and even insects.

The documented existence of lower quality or even invasive species along this corridor reinforces the need and importance of proactive and aggressive environmental management and restoration in the watershed. Comprehensive environmental improvement needs to be based on initiatives along several avenues, including water quality improvements, preservation of green space, minimization of habitat encroachment, and overall pollution control.

Franklin's stormwater management practice has, and with this update, will continue to address only one aspect of this preservation and environmental protection effort. The establishment of other such initiatives will undoubtedly be important, but not within the scope of the work presented in this Plan.

1.2.3. Storm Sewer System and Outfalls

Most of the urban portions of the City have storm sewer service, and in most cases, the available capacity and the overland drainage capabilities are sufficient to prevent serious flooding problems. Topographically, the southwest corner of the City drains to the Fox River, while an eastern portion drains to the Oak Creek. The remainder drains to Lake Michigan via the Root River.

Since the Root River bisects the City, several outfalls are located along the River. For the most part, the storm sewers do not receive significant additional runoff from other municipal systems, and, for the purposes of water quality and quantity, the outfalls represent City of Franklin contributions only. However, the Root River watershed extends as far north as the northern portions of New Berlin and West Allis.

There are 15 major watersheds within the City that contribute to the Root River. The Tess Corners Creek watershed takes runoff to the west and north, but eventually discharges to the Root River. The North Branch watershed and the Lower Branch watershed also "leave" the City, and eventually discharge into the Root River.

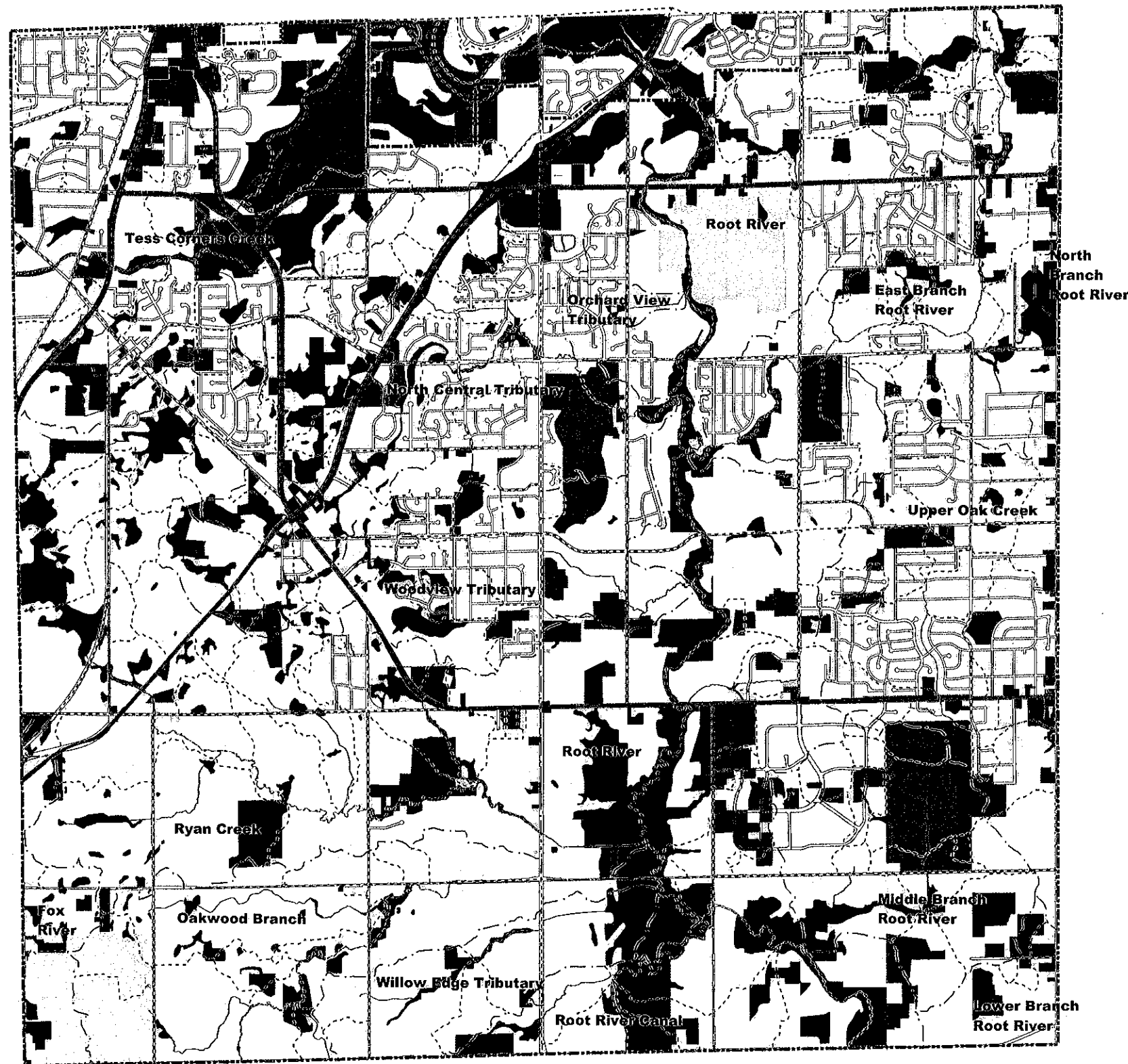
The upper Oak Creek watershed and the Fox River watershed are the only watersheds that do not discharge into the Root River.

Many of the watersheds were identified by the storm sewer systems as most of the runoff in a 100-year storm would flow through the pipes. In addition, the overland flow would generally flow in the same direction as the storm sewer system. The way in which the watersheds are developed should allow the City to choose any combination of watersheds to determine the hydrologic and hydraulic conditions of any future development scenario. The pollutant loadings from each watershed can also be added in any combination for analysis purposes.

It is intended that the City's storm sewer system map will be combined with the City's Geographic Information System (GIS), so that it serves as an easily updated document where all information regarding drainage in the City maybe concisely reported. While the storm sewer system map is to be developed by others, the watershed information assembled for this report can be combined with it using GIS software.

Figure 1

City of Franklin Generalized
1995 Existing Land Use
and Watersheds



Legend

Watersheds

- Watersheds
- Sub-Watersheds

1995 Existing Land Use

- Agriculture
- Commercial
- Environmental
- Industrial
- Institutional
- Mining and Land Fille
- Recreation
- Residential
- Transportation



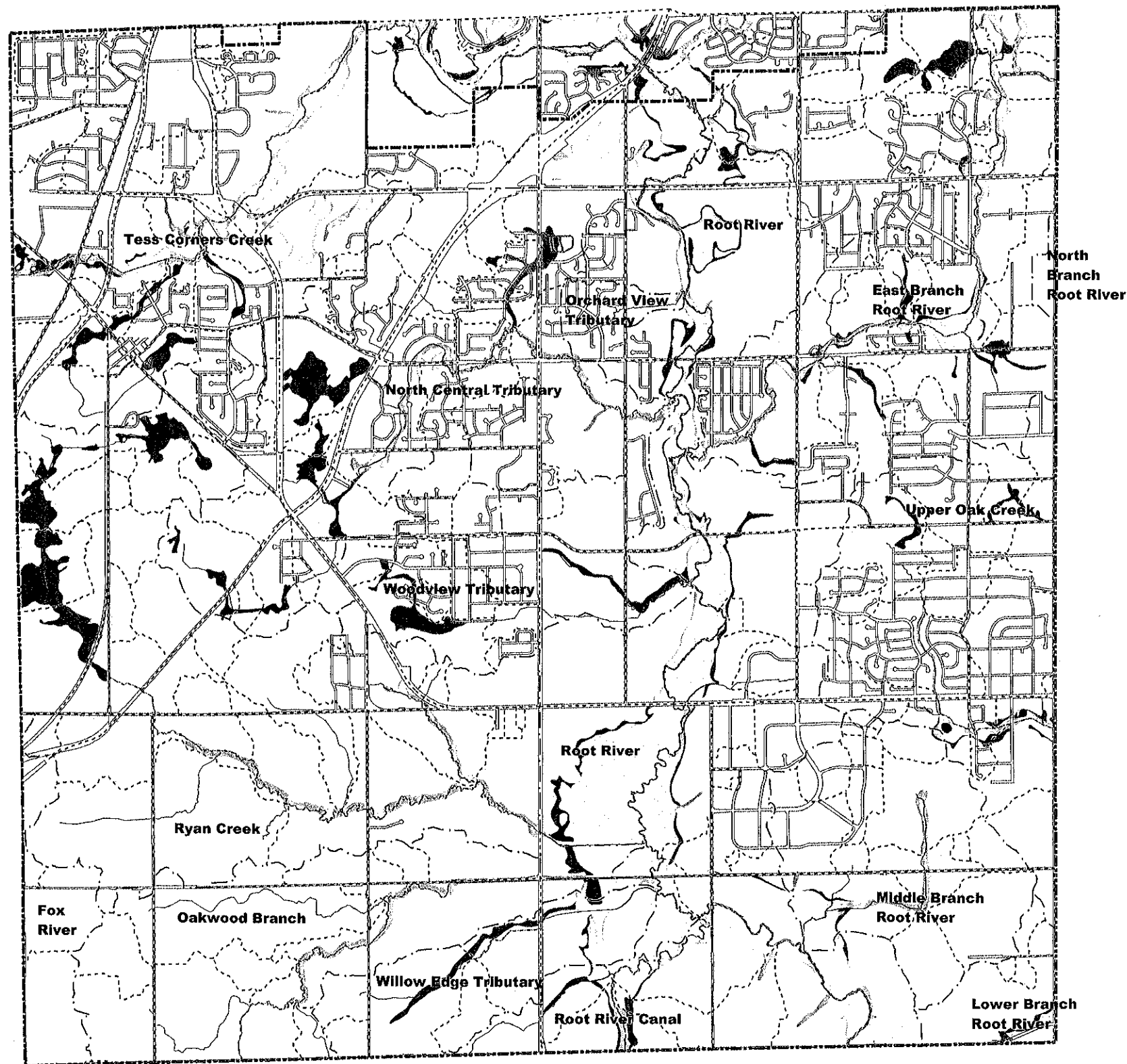
0 5,280
Feet

1 inch equals 0.75 miles

Source: Southeastern Wisconsin Regional Planning Commission 1995 Existing Land Use Survey

Figure 2

**City of Franklin
FEMA Floodplain**



Legend

Watersheds

--- Watersheds

----- Sub-Watersheds

FEMA Floodplain

100 Year Floodplain

500 Year Floodplain



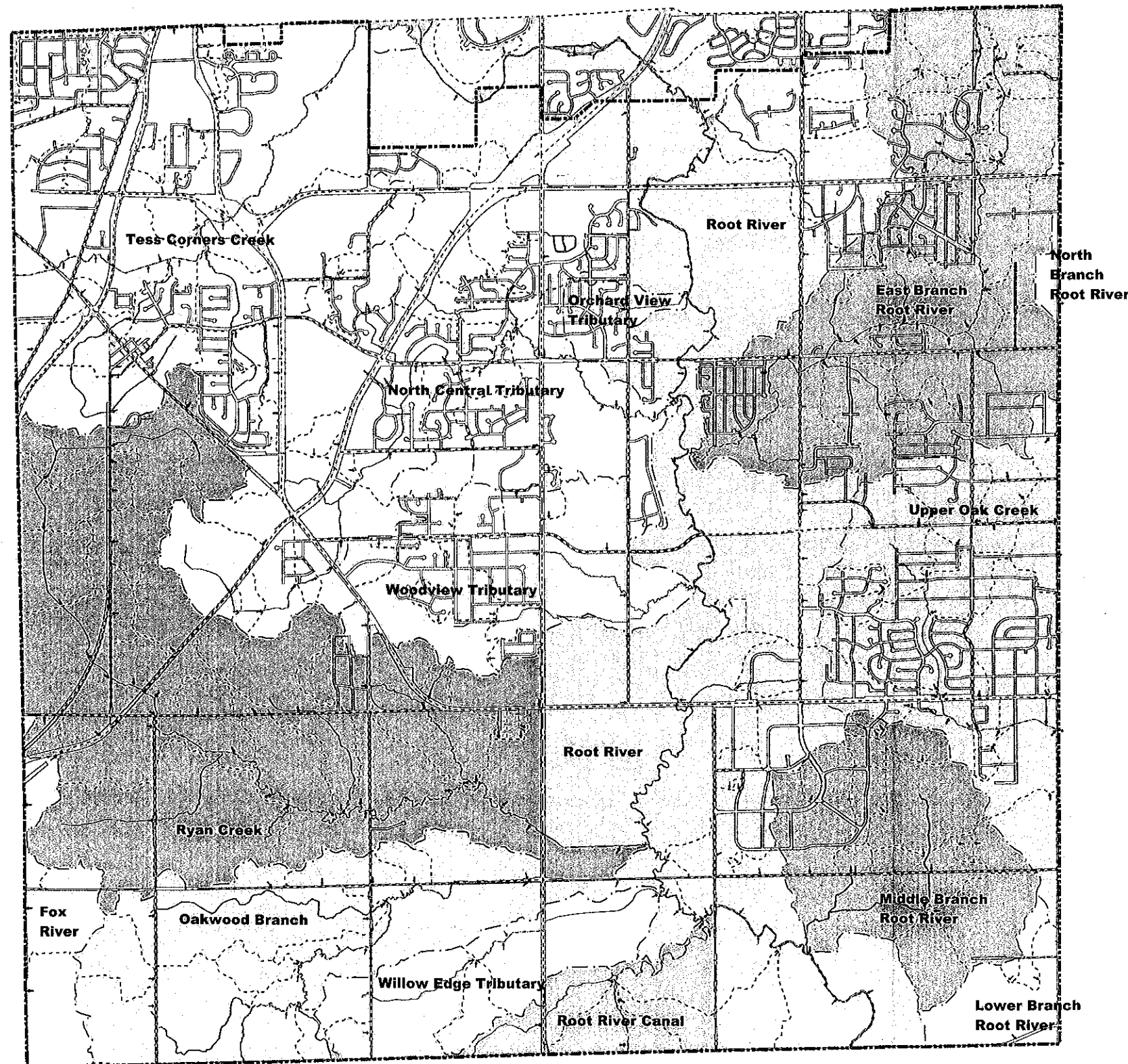
0 5,280
Feet

1 inch equals 0.75 miles

Source: Federal Emergency Management Agency National Flood Insurance Program Q3 Flood Data, 1998

Figure 3

City of Franklin Watersheds



Legend

Watersheds

- Watersheds
- Sub-Watersheds

Watersheds

- East Branch Root River
- Fox River
- Lower Branch Root River
- Middle Branch Root River
- North Branch Root River
- North Central Tributary
- Oakwood Branch
- Upper Oak Creek
- Orchard View Tributary
- Ryan Creek
- Root River
- Root River Canal
- Tess Corner Creek
- Willow Edge Tributary
- Woodview Tributary

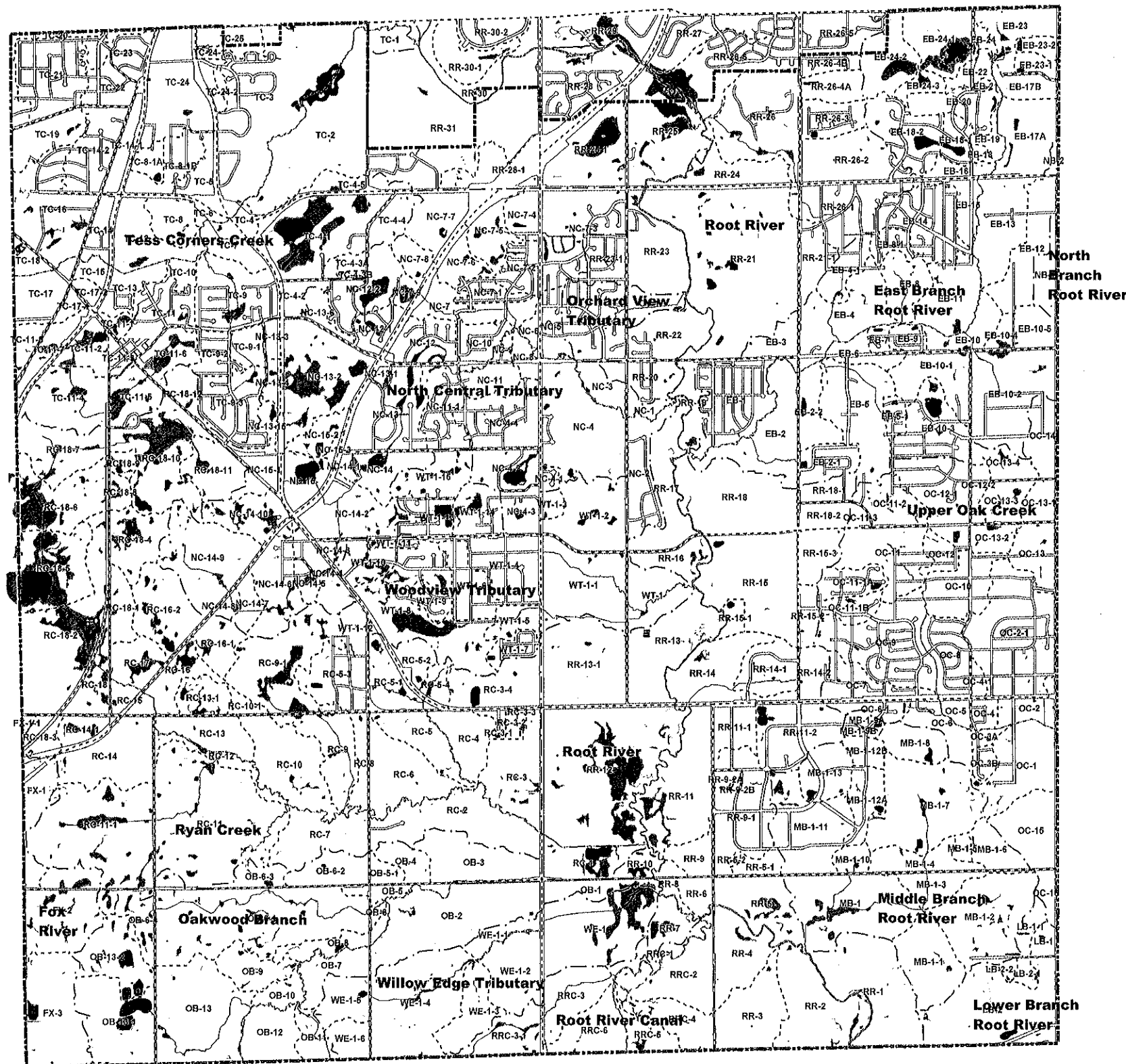


0 5,280
Feet

1 inch equals 0.75 miles

Figure 4

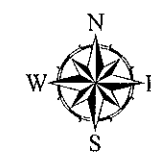
City of Franklin Water Features



Legend

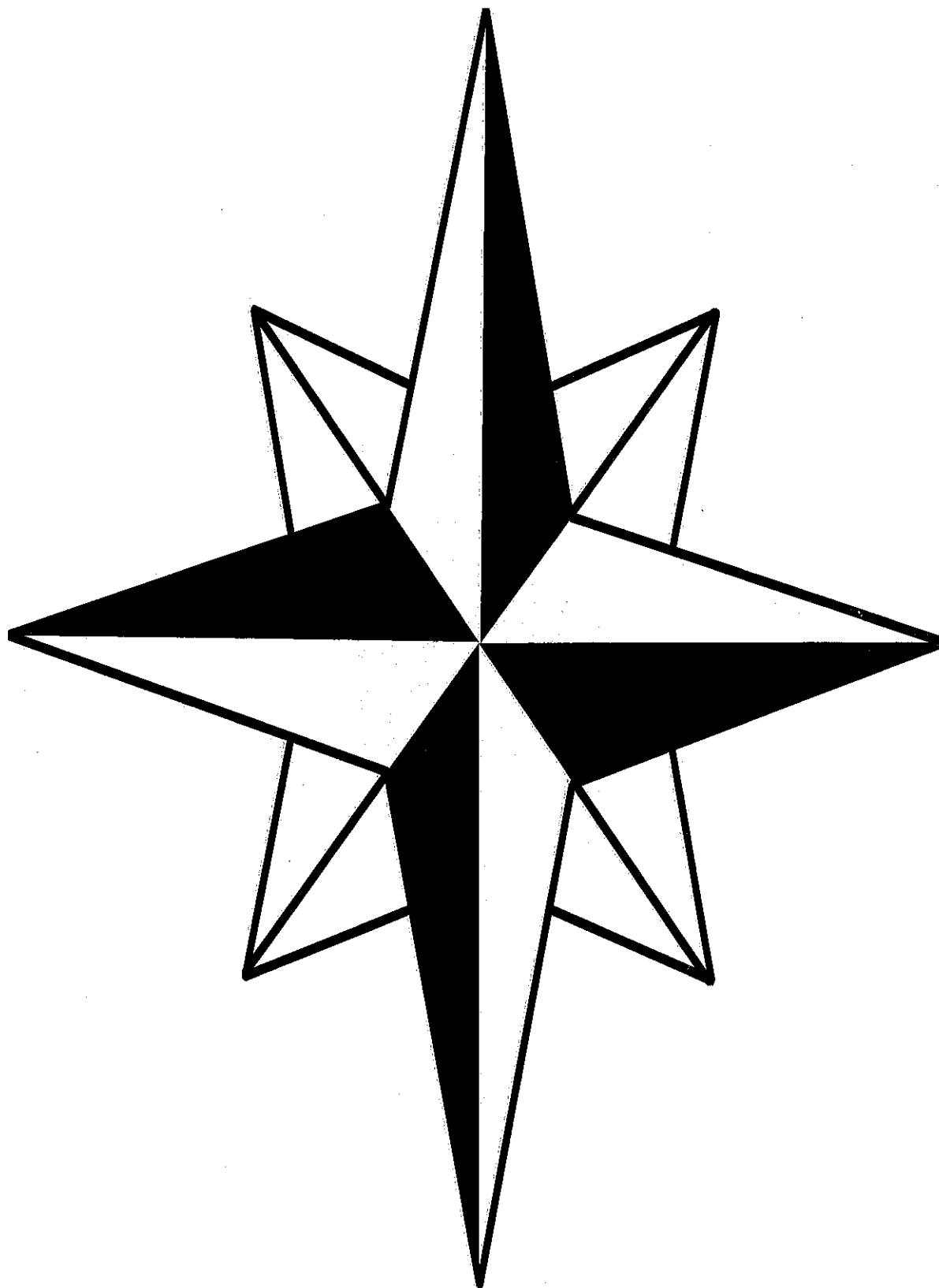
Watersheds

- Watersheds
- - - Sub-Watersheds
- Ponded Water
- Marsh
- Engineered Pond



0 5,280
Feet

1 inch equals 0.75 miles



1.2.4. Other Drainage Facilities

Over 100 new engineered ponds have been added to the City's drainage system since the original Stormwater Management Plan in 1993. These ponds have been added as development occurred, whether residential, commercial or industrial.

The pond storage and pond outlet information has been assembled from various sources. Most of the information was gathered from stormwater development reviews for the City performed by Bonestroo performed since 1993. For those reviews in which Bonestroo had no record, the information was obtained from the City of Franklin. Nonetheless, information was still lacking for some of the ponds. Through the use of aerial photographs, Bonestroo was able to determine the approximate surface area of engineered ponds, and estimate the storage information.

The gathering of this information presents an opportunity for the City to populate its GIS database. The pond information is presented in Appendix A. The information is also entered in ArcView as attribute information to the ponds. These data sets are also electronically transferred into the City's current GIS.

1.2.5. Floodplains

A floodplain analysis of the Root River or its tributaries was not included as part of this Management Plan. Site-specific review has been done, (and should continue to be done), as development occurs. However, it's important to know the extents of the floodplain so that those areas are not considered as potential storage. The 100-year and 500-year floodplain extents are shown in Figure 2. This map was obtained from the Federal Emergency Management Administration.

